CLAIM AMENDMENTS

A listing of an entire set of claims 1-11 is submitted herewith per 37 CFR §1.121. This listing of claims 1-11 will replace all prior versions, and listings, of claims in the application.

1. (Currently Amended) A converter circuit comprising:

- at least a first switching element (T_1) and a second switching element (T_2) and an inductive element (L),
- wherein a control device (26) is provided to alternately switch the switching elements (T_1, T_2) so that a current (I_L) flows through the inductive element (L),
- and wherein at least at the second switching element (T_2) there is provided a freewheeling diode (D_2) which is capable of conducting the current flowing through the inductive element (L) after turn-off of the first switching element (T_1),
- wherein the control device (26) controls a timing of driving the switching elements (T_1, T_2) upon switching from the second switching element (T_2) to the first switching element (T_1) by determining whether one of a shoot through current occurs and the freewheeling diode (D_2) is conducting,
- wherein, upon the occurrence of [a] the shoot through current, the [drive] timing of driving the switching elements (T_1, T_2) is changed such that the turn on of the first switching element (T_1) takes place later with respect to the instant of turn off of the second switching element (T_2),
- and when the freewheeling diode (D_2) is conducting, the [drive] timing of driving the switching elements (T_1, T_2) is changed such that the turn on of the first switching element (T_1) takes place sooner with respect to the instant of turn off of the second switching element (T_2).

2. (Currently Amended) A converter circuit as claimed in claim 1, wherein

- the switching elements (T_1, T_2) are driven such that they are simultaneously conducting during a period of overlap ($\Delta t_{overlap}$),
- and wherein the control device (26) controls the duration of the period of overlap ($\Delta t_{overlap}$) in that it is determined whether one of [a] the shoot through current occurs and the freewheeling diode (D_2)[,] is conducting,
- wherein, upon the occurrence of [a] the shoot through current, the duration of the period of overlap is reduced,
- and, when the freewheeling diode (D_2) is conducting, the duration of the period of overlap is increased.

3. (Currently Amended) A converter circuit as claimed in claim 1, wherein

- the control device (26) comprises means for measuring a voltage (V_{T2}) across the second switching element (T_2), the voltage (V_{T2}) being observed at least after turn-off of the second switching element (T_2),
- and it is determined, by means of a voltage variation, whether one of [a] the shoot through current occurs and the freewheeling diode (D_2) is conducting.

4. (Currently Amended) A converter circuit as claimed in claim 3, wherein

- the second switching element (T_2) is a MOSFET in a housing,
- wherein at least connecting lines for [the] a drain, [the] a source and [the] a gate of the MOSFET are led from the housing to an exterior,
- wherein one or more measuring lines are provided for determining the voltage (V_{T2}) between the drain and the source.

5. (Previously Presented) A converter circuit as claimed in claim 3, wherein

- a peak value ($\hat{V}_{T2}$) is determined from an oscillating voltage obtained after turn-off of the second switching element (T_2),
- and the timing of the drive of the switching elements (T_1, T_2) is set such that said peak value ($\hat{V}_{T2}$) is minimized.

6. (Previously Presented) A converter circuit as claimed in claim 3, wherein

- a minimum value of the voltage (V_{T2}) across the second switching element (T_2) is determined,
- and the timing of driving the switching elements (T_1, T_2) is set such that the minimum value of the voltage lies between a forward voltage of the second switching element (T_2) and a forward voltage of the freewheeling diode (D_2).

7. (Currently Amended) A converter circuit as claimed in claim 1, wherein

- the control device (26) comprises means for measuring at least one electrical quantity (V_{T2}) of the converter circuit (12),
- in the course of at least a first switching period (T) at least one measurement is carried out,
- and said measurement is sued to set the timing of driving the switching elements (T_1, T_2) in a second switching period.

8. (Previously Presented) A converter circuit as claimed in claim 1, wherein

- at an onset of operation, upon switching from the second to the first switching element, a dead time is provided between the turn off of the second switching element (T_2) and the turn on of the first switching element (T_1).

9. (Previously Presented) A converter circuit as claimed in claim 1, wherein

- upon switching from the second switching element (T_2) to the first switching element (T_1)
- the first switching element (T_1) is driven in such a way, for a protection period that lasts at least until the turn-off of the second switching element (T_2), that the current through the first switching element (T_1) cannot exceed a threshold value ($I_{t1,\,max}$),
- which threshold value ($I_{t1,\,max}$) lies above a nominal output current of the converter circuit.

10. (Currently Amended) A [converter circuit as claimed in claim 1, further] drive device for alternatively switching a first switching element (T_1) and a second switching element (T_2) so that a current (I_L) flows through an inductive element (L), the second switching element (T_2) being provided with a freewheeling diode (D_2) which is capable of conducting the current (I_L) flowing through the inductive element (L) after turn-off of the first switching element (T_1), the drive device comprising:

- [a device for alternately driving at least a first switching element (T_1) and a second switching element (T_2)] a pair of drive circuits (24, 25) for driving the first and second switching elements (T_1, T_2),
- and a control device (26) for determining whether one of a shoot through current occurs and a freewheeling diode [(T_2)] (D_2) is conducting,
- the control device (26) controls the drive circuits (24, 25) wherein a timing of driving the first and second switching elements (T_1, T_2) upon switching from the second switching element (T_2) to the first switching element (T_1) [being] is controlled such that, upon the occurrence of [a] the shoot through current, the [drive] timing of driving the switching elements (T_1, T_2) is changed such that the turn on of the first switching element (T_1) takes place later than the instant of turn off of the second switching element (T_2), and when the freewheeling diode (D_2) is

conducting, the [drive] timing of driving the switching elements (T_1, T_2) is changed such that the turn on of the first switching element (T_1) takes place before the instant of turn off of the second switching element (T_2).

11. (Currently Amended) A drive method for a converter switch comprising at least one half bridge (12) with a first and a second switching element (T_1, T_2), in which at least at the second switching element (T_2) and a freewheeling diode (D_2) is provided, wherein

- a timing of switching of the switching elements (T_1, T_2) upon switching from the second switching element (T_2) to the first switching element (T_1) is controlled,
- wherein it is determined whether one of the freewheeling diode (D_2) conducts and a shoot through current occurs,
- wherein, upon the occurrence of [a] the shoot through current, the turn on of the first switching element (T_1) takes place later with respect to the instant of turn off of the second switching element (T_2),
- and when the freewheeling diode (D_2) is conducting, the turn on of the first switching element (T_1) takes place sooner with respect to the instant of turn off of the second switching element (T_2).